

**Particle Acceleration in
Collisionless Magnetic Reconnection**

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Magnetic reconnection is a process of fundamental importance in the solar atmosphere, particularly in flares and in coronal heating. The acceleration of charged particles is a key diagnostic of reconnection, and we investigate this process in the framework of collisionless reconnection, relevant to hot tenuous plasmas where the length scale of the reconnection region is less than the particle mean free paths. We consider a steady reconnection scenario, with a two dimensional X-point magnetic field geometry, and an inductive electric field generating an inflow of particles. The aim is to investigate the effect of adding a uniform field component transverse to the plane of the X-point field. Test particles trajectories are studied, and the energy spectra of the accelerated particles leaving the reconnection site are determined. The interesting parameter regime is when there is both significant direct acceleration, due to the component of the magnetic field parallel to the driving electric field, and parallel acceleration generated through the interaction of the electric drift motion with the inhomogeneous magnetic field.

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